

FEDERAL UTILITY PARTNERSHIP WORKING GROUP SEMINAR

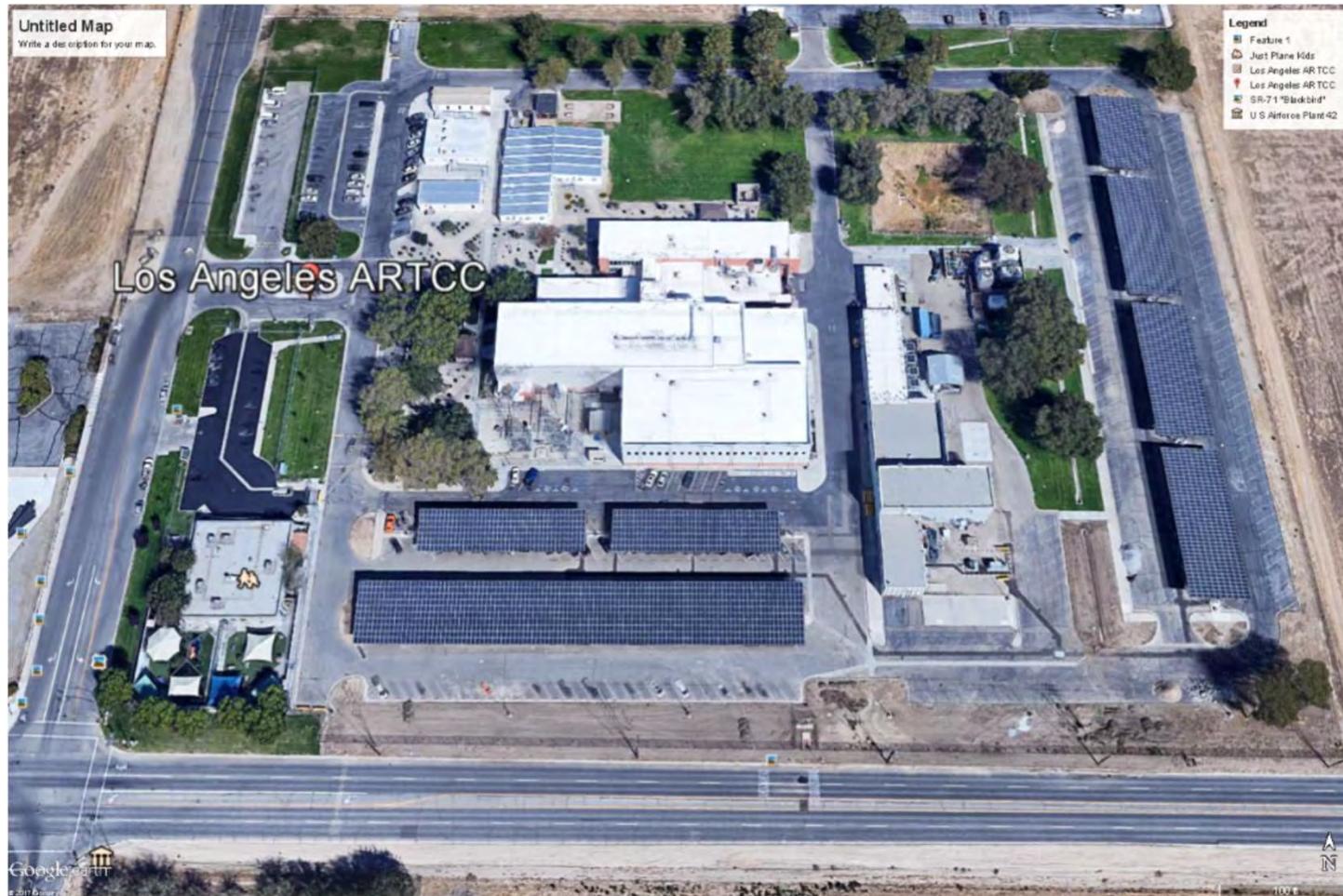
November 15-16, 2017
Ontario, California

Southern California Edison Case Study (FAA) FAA ZLA Facility Palmdale, CA SCE UESC Project

Hosted by:



FAA ZLA Facility Palmdale, CA SCE UESC Project



Performance Assurance Summary Report

Federal Utility Partnership Working Group
November 15-16, 2017 Ontario, CA



Energy Efficiency Measures (EEM's) Implemented under UESC Project:

EEM #1 - Interior Lighting Retrofit- Campus/ LED option

EEM #1E- Exterior Lighting Retrofit- Campus/ LED option

EEM#2 - Photovoltaic System implementation w/ string inverters

EEM#3-Re-Commissioning

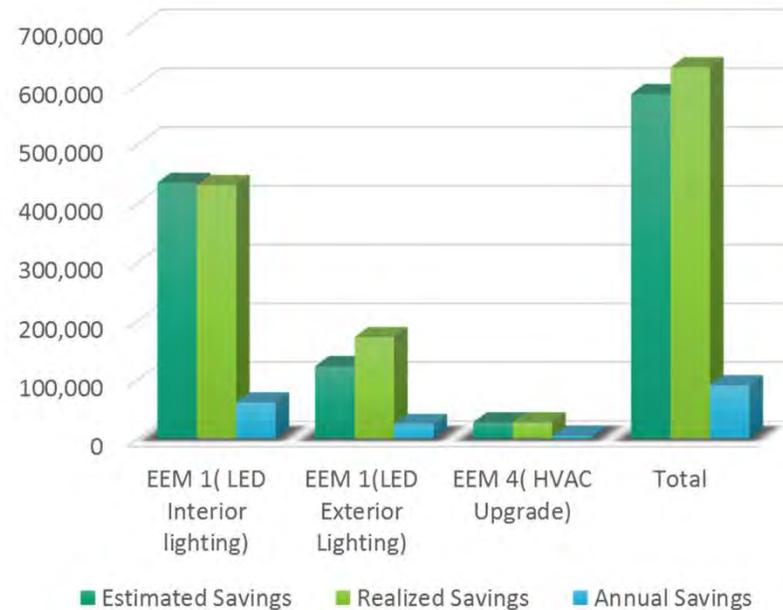
EEM #4 RTU replacement

EEM #5 Thermal Energy Storage (TES) Ice Storage with JCI controls

EEM#6 - Water Conservation Measures (landscape and Irrigation System Study)

Energy Efficiency Measures Savings

EEM List	Estimated Savings kWh	Realized Savings kWh	Annual Savings \$
EEM 1(LED Interior lighting)	435,437	431,588	61,767
EEM 1(LED Exterior Lighting)	123,459	172,890	25,013
EEM 4(HVAC Upgrade)	27,651	27,640	4,205
Total	586,547	632,118	90,985



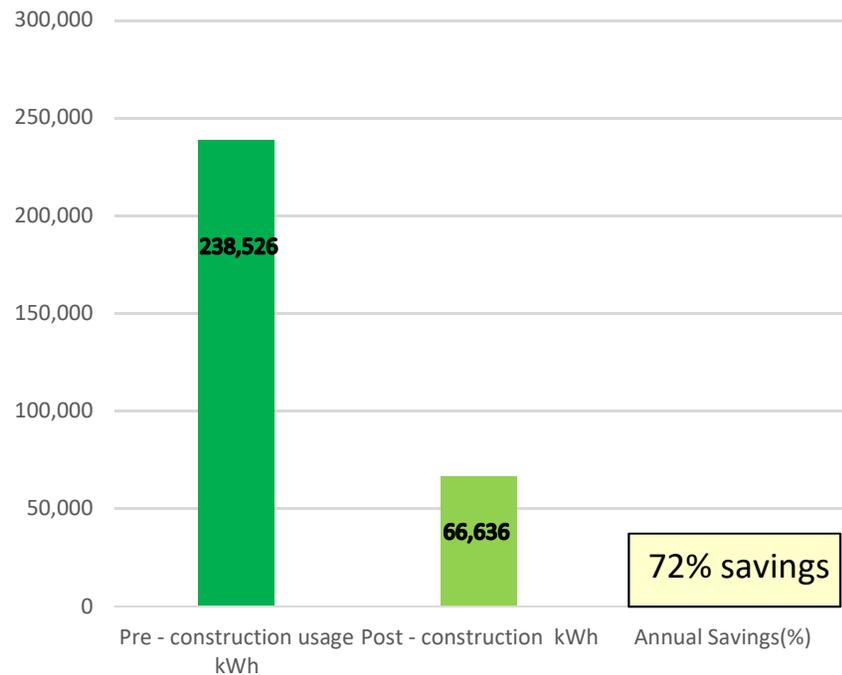
Energy Efficiency Measures Savings (cont'd)

EEM 1-LED Interior Lighting Retrofit



■ Pre - construction usage kWh ■ Post - construction kWh ■ Annual Savings(%)

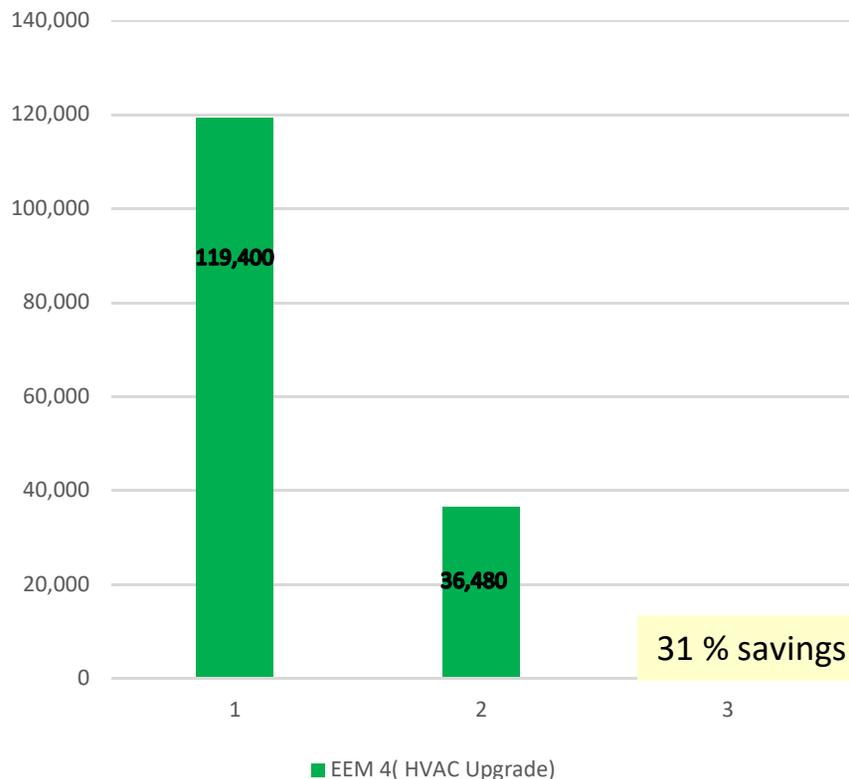
EEM 1(LED Exterior Lighting)



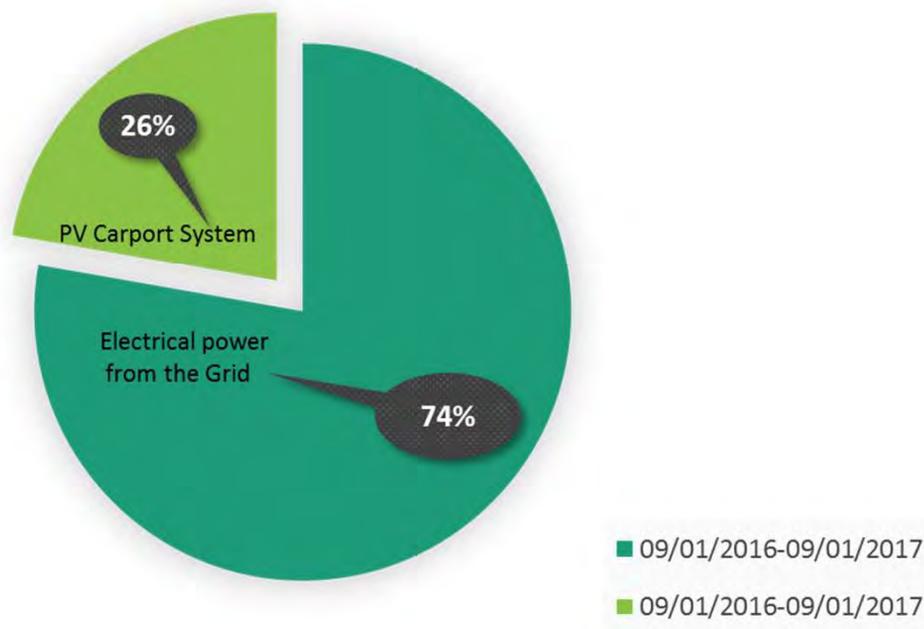
■ Pre - construction usage kWh ■ Post - construction kWh ■ Annual Savings(%)

Energy Efficiency Measures Savings (cont'd)

EEM 4(HVAC Upgrade)



PV Contribution to building Energy Usage



Total Billed Amount Comparison



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FEDERAL AVIATION ADMINISTRATION, PALMDALE BUILDING RCx /SUMMARY OF OPPORTUNITIES

LIST OF RECOMMENDED MEASURES

Tag	Major System	Measure Description	Electric Demand Savings (kW)	Electric Savings (kWh/yr)	Chilled Water Savings (ton-hrs/yr)	Carbon Savings (Tonnes-CO2/yr)	Energy Cost Savings (\$/yr)	Implementation Cost (\$)	Simple Payback	Problem Type Operation (O) Maintenance (M) Design (D)	Indoor Environmental Quality
1	Airside HVAC	Implement Unoccupied Zone Temp Set Back w/ Minimum Flow Set Back	4	6,455		4	\$813	\$4,800	5.9	O	Maintained
2	Waterside HVAC	Condenser Water Reset		68,820		38	\$8,673	\$2,000	0.2	O	Maintained
3	Waterside HVAC	Add VFD to Chilled Water Pumps and Optimize Flow	28	398,653		222	\$50,240	\$104,460	2.1	D	Maintained
4	Waterside HVAC	Add VFD to Cooling Tower Fans	(2)	8,175		5	\$1,030	\$49,080	47.6	D	Maintained
5	Waterside HVAC	Add VFD to condenser water pumps and Optimize Flow	24	149,215		83	\$20,563	\$74,500	3.6	D	Maintained
6	Waterside HVAC	Add VFD to Heating Hot Water Pumps and Optimize Flow	2	10,261		6	\$1,414	\$20,200	14.3	D	Maintained
Total Annual Usage			56	641,600	-	357	82,734	255,040	3.1		

Conclusion

HVAC Upgrade; LED Lighting Retrofit



- ✓ Project Cost: \$886,318.00
- ✓ Project Energy Savings: \$ 90,985.00
- ✓ Simple Payback: 6.9 years

Photovoltaic Carport System



- ✓ Project Cost: \$ 3,412,145.00
- ✓ Project Energy Savings: \$ 312,969.00
- ✓ Simple Payback: 10.1 years

Questions?

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